

## SEQUENCE LISTING

<110> SIBBESEN, OLE  
SORENSEN, JENS FRISBAEK

<120> PROTEINS

<130> 078883/0132

<140> 09/869,155  
<141> 2001-06-25

<150> PCT/IB99/02071  
<151> 1999-12-17

<150> GB 9828599.2  
<151> 1998-12-23

<150> GB 9907805.7  
<151> 1999-04-06

<150> GB 9908645.6  
<151> 1999-04-15

<160> 19

<170> PatentIn Ver. 2.1

<210> 1  
<211> 57  
<212> PRT  
<213> Artificial Sequence

<220>  
<221> MOD\_RES  
<222> (17)  
<223> Any Amino Acid

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<223> Any Amino Acid

<220>  
<221> MOD\_RES  
<222> (49)  
<223> Any Amino Acid

<220>  
<223> Description of Artificial Sequence: Synthetic  
Xylanase Inhibitor

<400> 1  
Leu Ala Val Val Ala Arg Ala Val Lys Asp Val Ala Pro Phe Gly Val  
1 5 10 15  
Xaa Tyr Asp Thr Lys Thr Leu Gly Asn Asn Leu Gly Gly Tyr Ala Val  
20 25 30

Pro Asn Gln Leu Gly Leu Leu Asp Gly Gly Xaa Asp Trp Thr Met Ile  
           35                          40                          45

Xaa Lys Asn Ser Met Val Asp Val Lys  
           50                          55

<210> 2  
 <211> 38  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <221> MOD\_RES  
 <222> (26)  
 <223> Any Amino Acid

<220>  
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 <222> (31)  
 <223> Any Amino Acid

<220>  
 <221> MOD\_RES  
 <222> (34)  
 <223> Any Amino Acid

<220>  
 <221> MOD\_RES  
 <222> (38)  
 <223> Any Amino Acid

<220>  
 <223> Description of Artificial Sequence: Synthetic  
           Xylanase Inhibitor

<400> 2  
 Gly Pro Pro Leu Ala Pro Val Thr Glu Ala Pro Ala Thr Ser Leu Tyr  
       1                          5                          10                          15

Thr Ile Pro Phe His His Gly Ala Ala Xaa Val Leu Asp Val Xaa Ser  
           20                          25                          30

Ser Xaa Leu Leu Trp Xaa  
           35

<210> 3  
 <211> 213  
 <212> PRT  
 <213> Unknown Organism

<220>  
 <223> Description of Unknown Organism: Xylanase

&lt;400&gt; 3

Met Phe Lys Phe Lys Lys Lys Phe Leu Val Gly Leu Thr Ala Ala Phe  
 1 5 10 15

Met Ser Ile Ser Met Phe Ser Ala Thr Ala Ser Ala Ala Gly Thr Asp  
 20 25 30

Tyr Trp Gln Asn Trp Thr Asp Gly Gly Gly Thr Val Asn Ala Val Asn  
 35 40 45

Gly Ser Gly Gly Asn Tyr Ser Val Asn Trp Ser Asn Thr Gly Asn Phe  
 50 55 60

Val Val Gly Lys Gly Trp Thr Thr Gly Ser Pro Phe Arg Thr Ile Asn  
 65 70 75 80

Tyr Asn Ala Gly Val Trp Ala Pro Asn Gly Asn Gly Tyr Leu Thr Leu  
 85 90 95

Tyr Gly Trp Thr Arg Ser Pro Leu Ile Glu Tyr Tyr Val Val Asp Ser  
 100 105 110

Trp Gly Thr Tyr Arg Pro Thr Gly Thr Tyr Lys Gly Thr Val Lys Ser  
 115 120 125

Asp Gly Gly Thr Tyr Asp Ile Tyr Thr Thr Thr Arg Tyr Asn Ala Pro  
 130 135 140

Ser Ile Asp Gly Asp Asn Thr Thr Phe Thr Gln Tyr Trp Ser Val Arg  
 145 150 155 160

Gln Ser Lys Arg Pro Thr Gly Ser Asn Ala Ala Ile Thr Phe Ser Asn  
 165 170 175

His Val Asn Ala Trp Lys Ser His Gly Met Asn Leu Gly Ser Asn Trp  
 180 185 190

Ala Tyr Gln Val Leu Ala Thr Glu Gly Tyr Lys Ser Ser Gly Ser Ser  
 195 200 205

Asn Val Thr Val Trp  
 210

&lt;210&gt; 4

&lt;211&gt; 642

&lt;212&gt; DNA

&lt;213&gt; Unknown Organism

&lt;220&gt;

&lt;223&gt; Description of Unknown Organism: Xylanase

&lt;400&gt; 4

atgtttaagt ttaaaaagaa attcttagtt ggattaacgg cagctttcat gagtatcagc 60  
 atgttttcgg caaccgcctc tgcagctggc acagattact ggcaaaattg gactgacggg 120  
 ggcgggacag taaacgcagt caatggctct ggcggaaatt acagtgttaa ttggtctaata 180  
 accgggaatt tcgttggtgg taaaggctgg actacaggct cgccatttag aacaataaac 240  
 tataatgccg gtgtttgggc gccgaatggc aatggatatt taactttata tggctggacg 300

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agatcgcccc tcacgaata ttatgtggtg gattcatggg gtacttacag acctaccgga 360
acgtataaaag gtaccgtaaa gagtgatgga ggtacatatg acatatatac aacgacacgt 420
tataacgcac cttccattga tggcgataac actactttta cgagtgactg gagtgtccgc 480
cagtcgaaga gaccgaccgg aagcaacgct gcaatcactt tcagcaatca tgttaacgca 540
tggaagagcc atggaatgaa tctgggcagt aattgggctt atcaagtctt agcgacagaa 600
ggatataaaa gcagcggaag ttctaattga acagtgtggt aa 642

```

<210> 5

<211> 213

<212> PRT

<213> *Bacillus subtilis*

<400> 5

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Met Phe Lys Phe Lys Lys Asn Phe Leu Val Gly Leu Ser Ala Ala Leu
  1              5              10              15

Met Ser Ile Ser Leu Phe Ser Ala Thr Ala Ser Ala Ala Ser Thr Asp
              20              25              30

Tyr Trp Gln Asn Trp Thr Asp Gly Gly Gly Ile Val Asn Ala Val Asn
  35              40              45

Gly Ser Gly Gly Asn Tyr Ser Val Asn Trp Ser Asn Thr Gly Asn Phe
  50              55              60

Val Val Gly Lys Gly Trp Thr Thr Gly Ser Pro Phe Arg Thr Ile Asn
  65              70              75              80

Tyr Asn Ala Gly Val Trp Ala Pro Asn Gly Asn Gly Tyr Leu Thr Leu
              85              90              95

Tyr Gly Trp Thr Arg Ser Pro Leu Ile Glu Tyr Tyr Val Val Asp Ser
  100              105              110

Trp Gly Thr Tyr Arg Pro Thr Gly Thr Tyr Lys Gly Thr Val Lys Ser
  115              120              125

Asp Gly Gly Thr Tyr Asp Ile Tyr Thr Thr Thr Arg Tyr Asn Ala Pro
  130              135              140

Ser Ile Asp Gly Asp Arg Thr Thr Phe Thr Gln Tyr Trp Ser Val Arg
  145              150              155              160

Gln Ser Lys Arg Pro Thr Gly Ser Asn Ala Thr Ile Thr Phe Ser Asn
              165              170              175

His Val Asn Ala Trp Lys Ser His Gly Met Asn Leu Gly Ser Asn Trp
  180              185              190

Ala Tyr Gln Val Met Ala Thr Glu Gly Tyr Gln Ser Ser Gly Ser Ser
  195              200              205

Asn Val Thr Val Trp
  210

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<210> 6  
 <211> 642  
 <212> DNA  
 <213> Bacillus subtilis

<400> 6  
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 ttgttttcgg caaccgcctc tgcagctagc acagactact ggcaaaattg gactgatggg 120  
 ggcggtatag taaacgctgt caatgggtct ggcgggaatt acagtgttaa ttggtctaata 180  
 accggaaatt ttgttgttgg taaaggttgg actacaggtt cgccatttag gacgataaac 240  
 tataatgccg gagtttgggc gccgaatggc aatggatatt taactttata tggttggacg 300  
 agatcacctc tcatagaata ttatgtagtg gattcatggg gtacttatag acctactgga 360  
 acgtataaag gtactgtaaa aagtgatggg ggtacatatg acatatatac aactacacgt 420  
 tataacgcac cttccattga tggcgatcgc actactttta cgcagtactg gagtggttcgc 480  
 cagtcgaaga gaccaaccgg aagcaacgct acaatcactt tcagcaatca tgtgaacgca 540  
 tggaagagcc atggaatgaa tctgggcagt aattgggctt accaagtcac ggcgacagaa 600  
 ggatatcaaaa gtagtgaag ttctaacgta acagtgtggt aa 642

<210> 7  
 <211> 213  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
 Mutant Xylanase

<400> 7  
 Met Phe Lys Phe Lys Lys Asn Phe Leu Val Gly Leu Ser Ala Ala Leu  
 1 5 10 15  
 Met Ser Ile Ser Leu Phe Ser Ala Thr Ala Ser Ala Ala Ser Thr Asp  
 20 25 30  
 Tyr Trp Gln Asn Trp Thr Asp Gly Gly Gly Thr Val Asn Ala Val Asn  
 35 40 45  
 Gly Ser Gly Gly Asn Tyr Ser Val Asn Trp Ser Asn Thr Gly Asn Phe  
 50 55 60  
 Val Val Gly Lys Gly Trp Thr Thr Gly Ser Pro Phe Arg Thr Ile Asn  
 65 70 75 80  
 Tyr Asn Ala Gly Val Trp Ala Pro Asn Gly Asn Gly Tyr Leu Thr Leu  
 85 90 95  
 Tyr Gly Trp Thr Arg Ser Pro Leu Ile Glu Tyr Tyr Val Val Asp Ser  
 100 105 110  
 Trp Gly Thr Tyr Arg Pro Thr Gly Thr Tyr Lys Gly Thr Val Lys Ser  
 115 120 125  
 Asp Gly Gly Thr Tyr Asp Ile Tyr Thr Thr Thr Arg Tyr Asn Ala Pro  
 130 135 140  
 Ser Ile Asp Gly Asp Arg Thr Thr Phe Thr Gln Tyr Trp Ser Val Arg  
 145 150 155 160

Gln Ser Lys Arg Pro Thr Gly Ser Asn Ala Ala Ile Thr Phe Ser Asn  
165 170 175

His Val Asn Ala Trp Lys Ser His Gly Met Asn Leu Gly Ser Asn Trp  
180 185 190

Ala Tyr Gln Val Leu Ala Thr Glu Gly Tyr Lys Ser Ser Gly Ser Ser  
195 200 205

Asn Val Thr Val Trp  
210

<210> 8

<211> 642

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
Mutant Xylanase

<400> 8

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atgtttaagt ttaaaaagaa tttcttagtt ggattatcgg cagctttaat gagtattagc 60
ttgttttcgg caaccgcctc tgcagctagc acagactact ggcaaaattg gactgatggg 120
ggcggtagcg taaacgctgt caatgggtct ggcgggaatt acagtgttaa ttggtctaata 180
accggaaatt ttgttggttg taaagggttg actacaggtt cgccatttag gacgataaac 240
tataatgccg gagtttgggc gccgaatggc aatggatatt taactttata tggttggacg 300
agatcacctc tcatagaata ttatgtagtg gattcatggg gtacttatag acctactgga 360
acgtataaag gtactgtaaa aagtgatggg ggtacatatg acatatatac aactacacgt 420
tataacgcac cttccattga tggcgatcgc actactttta cgcagtactg gagtgttcgc 480
cagtcgaaga gaccaaccgg aagcaacgct gctatcactt tcagcaatca tgtgaacgca 540
tggaagagcc atggaatgaa tctgggcagt aattgggctt accaagtcct cgcgacagaa 600
ggatataaaa gttccggaag ttctaacgta acagtgtggt aa 642
```

<210> 9

<211> 213

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
Mutant Xylanase

<400> 9

Met Phe Lys Phe Lys Lys Asn Phe Leu Val Gly Leu Ser Ala Ala Leu  
1 5 10 15

Met Ser Ile Ser Leu Phe Ser Ala Thr Ala Ser Ala Ala Ser Thr Asp  
20 25 30

Tyr Trp Gln Asn Trp Thr Asp Gly Gly Gly Thr Val Asn Ala Val Asn  
35 40 45

Gly Ser Gly Gly Asn Tyr Ser Val Asn Trp Ser Asn Thr Gly Asn Phe  
50 55 60

Val Val Gly Lys Gly Trp Thr Thr Gly Ser Pro Phe Arg Thr Ile Asn  
65 70 75 80

Tyr Asn Ala Gly Val Trp Ala Pro Asn Gly Asn Gly Tyr Leu Thr Leu  
85 90 95

Tyr Gly Trp Thr Arg Ser Pro Leu Ile Glu Tyr Tyr Val Val Asp Ser  
100 105 110

Trp Gly Thr Tyr Arg Pro Thr Gly Thr Tyr Lys Gly Thr Val Lys Ser  
115 120 125

Asp Gly Gly Thr Tyr Asp Ile Tyr Thr Thr Thr Arg Tyr Asn Ala Pro  
130 135 140

Ser Ile Asp Gly Asp Asn Thr Thr Phe Thr Gln Tyr Trp Ser Val Arg  
145 150 155 160

Gln Ser Lys Arg Pro Thr Gly Ser Asn Ala Ala Ile Thr Phe Ser Asn  
165 170 175

His Val Asn Ala Trp Lys Ser His Gly Met Asn Leu Gly Ser Asn Trp  
180 185 190

Ala Tyr Gln Val Leu Ala Thr Glu Gly Tyr Lys Ser Ser Gly Ser Ser  
195 200 205

Asn Val Thr Val Trp  
210

<210> 10

<211> 642

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
Mutant Xylanase

<400> 10

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atgtttaagt ttaaaaagaa tttcttagtt ggattatcgg cagctttaat gagtattagc 60
ttgttttcgg caaccgcctc tgcagctagc acagactact ggcaaaattg gactgatggg 120
ggcgggtaccg taaacgctgt caatgggtct ggcgggaatt acagtgttaa ttggtctaata 180
accggaaatt ttgtttgttg taaaggttgg actacaggtt cgccatttag gacgataaac 240
tataatgccg gagtttgggc gccgaatggc aatggatatt taactttata tggttggacg 300
agatcacctc tcatagaata ttatgtagtg gattcatggg gtacttatag acctactgga 360
acgtataaag gtactgtaaa aagtgatggg ggtacatatg acatatatac aactacacgt 420
tataacgcac cttccattga tggcgataat actactttta cgcagtactg gagtgttcgc 480
cagtcgaaga gaccaaccgg aagcaacgct gctatcactt tcagcaatca tgtgaacgca 540
tggaagagcc atggaatgaa tctgggcagt aattgggctt accaagtcct cgcgacagaa 600
ggatataaaa gttccggaag ttctaacgta acagtgtggt aa 642
```

<210> 11

<211> 213

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
Mutant Xylanase

<400> 11

Met Phe Lys Phe Lys Lys Asn Phe Leu Val Gly Leu Ser Ala Ala Leu  
1 5 10 15

Met Ser Ile Ser Leu Phe Ser Ala Thr Ala Ser Ala Ala Ser Thr Asp  
20 25 30

Tyr Trp Gln Asn Trp Thr Asp Gly Gly Gly Thr Val Asn Ala Val Asn  
35 40 45

Gly Ser Gly Gly Asn Tyr Ser Val Asn Trp Ser Asn Thr Gly Asn Phe  
50 55 60

Val Val Gly Lys Gly Trp Thr Thr Gly Ser Pro Phe Arg Thr Ile Asn  
65 70 75 80

Tyr Asn Ala Gly Val Trp Ala Pro Asn Gly Asn Gly Tyr Leu Thr Leu  
85 90 95

Tyr Gly Trp Thr Arg Ser Pro Leu Ile Glu Tyr Tyr Val Val Asp Ser  
100 105 110

Trp Gly Thr Tyr Arg Pro Thr Gly Thr Tyr Lys Gly Thr Val Lys Ser  
115 120 125

Asp Gly Gly Thr Tyr Asp Ile Tyr Thr Thr Thr Arg Tyr Asn Ala Pro  
130 135 140

Ser Ile Asp Gly Asp Asn Thr Thr Phe Thr Gln Tyr Trp Ser Val Arg  
145 150 155 160

Gln Ser Lys Arg Pro Thr Gly Ser Asn Ala Thr Ile Thr Phe Ser Asn  
165 170 175

His Val Asn Ala Trp Lys Ser His Gly Met Asn Leu Gly Ser Asn Trp  
180 185 190

Ala Tyr Gln Val Met Ala Thr Glu Gly Tyr Gln Ser Ser Gly Ser Ser  
195 200 205

Asn Val Thr Val Trp  
210

<210> 12

<211> 642

<212> DNA

<213> Artificial Sequence



<220>

<223> Description of Artificial Sequence: Synthetic  
Mutant Xylanase

<400> 12

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atgtttaagt ttaaaaagaa tttcttagtt ggattatcgg cagctttaat gagtattagc 60
ttgttttcgg caaccgcctc tgcagctagc acagactact ggcaaaattg gactgatggg 120
ggcgggtaccg taaacgctgt caatgggtct ggcgggaatt acagtgttaa ttggtctaata 180
accggaaatt ttgttggttg taaagggttg actacaggtt cgccatttag gacgataaac 240
tataatgccg gagtttgggc gccgaatggc aatggatatt taactttata tggttggacg 300
agatcacctc tcatagaata ttatgtagtg gattcatggg gtacttatag acctactgga 360
acgtataaag gtactgtaaa aagtgatggg ggtacatatg acatatatac aactacacgt 420
tataacgcac cttccattga tggcgataat actactttta cgcagtactg gagtggtcgc 480
cagtcgaaga gaccaaccgg aagcaacgct acaatcactt tcagcaatca tgtgaacgca 540
tggaagagcc atggaatgaa tctgggcagt aattgggctt accaagtcac ggcgacagaa 600
ggatatcaaa gtagtggaag ttctaacgta acagtgtggt aa 642
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<210> 13

<211> 35

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
Xylanase Inhibitor

<400> 13

```
Gly Ala Pro Val Ala Arg Ala Val Glu Ala Val Ala Pro Phe Gly Val
  1           5           10           15
```

```
Cys Tyr Asp Thr Lys Thr Leu Gly Asn Asn Leu Gly Gly Tyr Ala Val
          20           25           30
```

```
Pro Asn Val
          35
```

<210> 14

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic  
Xylanase Inhibitor

<400> 14

```
Lys Arg Leu Gly Phe Ser Arg Leu Pro His Phe Thr Gly Cys Gly Gly
  1           5           10           15
```

```
Leu
```

<210> 15

<211> 21

<212> PRT

<213> Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
Xylanase Inhibitor

&lt;400&gt; 15

Leu	Pro	Val	Pro	Ala	Pro	Val	Thr	Lys	Asp	Pro	Ala	Thr	Ser	Leu	Tyr
1				5					10					15	

Thr	Ile	Pro	Phe	His
				20

&lt;210&gt; 16

&lt;211&gt; 31

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
Xylanase Inhibitor

&lt;400&gt; 16

Leu	Leu	Ala	Ser	Leu	Pro	Arg	Gly	Ser	Thr	Gly	Val	Ala	Gly	Leu	Ala
1				5					10					15	

Asn	Ser	Gly	Leu	Ala	Leu	Pro	Ala	Gln	Val	Ala	Ser	Ala	Gln	Lys
			20					25					30	

&lt;210&gt; 17

&lt;211&gt; 24

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
Xylanase Inhibitor

&lt;400&gt; 17

Gly	Gly	Ser	Pro	Ala	His	Tyr	Ile	Ser	Ala	Arg	Phe	Ile	Glu	Val	Gly
1				5					10					15	

Asp	Thr	Arg	Val	Pro	Ser	Val	Glu
							20

&lt;210&gt; 18

&lt;211&gt; 13

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
Xylanase Inhibitor

&lt;400&gt; 18

Val Asn Val Gly Val Leu Ala Ala Cys Ala Pro Ser Lys  
 1 5 10

&lt;210&gt; 19

&lt;211&gt; 41

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
 Xylanase Inhibitor

&lt;400&gt; 19

Val Ala Asn Arg Phe Leu Leu Cys Leu Pro Thr Gly Gly Pro Gly Val  
 1 5 10 15

Ala Ile Phe Gly Gly Gly Pro Val Pro Trp Pro Gln Phe Thr Gln Ser  
 20 25 30

Met Pro Tyr Thr Leu Val Val Val Lys  
 35 40